

# Inspection Report For Well: UT20736 - 04502

U.S. Environmental Protection Agency  
Underground Injection Control Program, 8ENF-T  
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah

Date: <sup>12</sup>10/11/2013

Others: Ajayi, Christopher

Time: 10:47 am pm

OPERATOR (only if different):

REPRESENTATIVE(S): Chad Steensen

## PRE-INSPECTION REVIEW

### Petroglyph Operating Company, Inc

Well Name: Ute Tribal 19-01

Well Type: Enhanced Recovery (2R)

Operating Status: AC (ACTIVE) as of 12/31/2002

Oil Field: Antelope Creek (Duchesne)

Location: NENE S19 T5S R3W

Indian Country: X, Uintah and Ouray

Last Inspection: 8/29/2012

Allowable Inj Pressure: 1835 /

Last MIT: Pass 5/6/2009

Annulus Pressure From Last MIT: 1150

BLACK = POSSIBLE VIOLATION

GREY = DATA MISSING

### INSPECTION TYPE:

(Select One)

☐ Construction / Workover

☐ Response to Complaint

☐ Other

☐ Plugging

☒ Routine

ICIS Entered

☐ Post-Closure

☐ Witness MIT

Date 1/2/14

### OBSERVED VALUES:

Initials JS

Tubing Gauge:

☒ Yes  
☐ No

Pressure: U: 1711 / L: \_\_\_\_\_ psig

Gauge Range: Scada \_\_\_\_\_ psig

Gauge Owner:

☐ EPA

☒ Operator

Annulus Gauge:

☒ Yes  
☐ No

Pressure: 0 \_\_\_\_\_ psig

Gauge Range: opened \_\_\_\_\_ psig

Gauge Owner:

☒ EPA

☐ Operator

Bradenhead Gauge:

☐ Yes  
☐ No

Pressure: \_\_\_\_\_ psig

Gauge Range: \_\_\_\_\_ psig

Gauge Owner:

☐ EPA

☐ Operator

Pump Gauge:

☐ Yes  
☐ No

Pressure: \_\_\_\_\_ psig

Gauge Range: \_\_\_\_\_ psig

Gauge Owner:

☐ EPA

☐ Operator

Operating Status:

(Select One)

☒ Active

☐ Being Reworked

☐ Not Injecting

☐ Production

☐ Plugged and Abandoned

☐ Under Construction

U2 Entered

12/17/13

Initials

See page 2 for photos, comments, and site conditions.

TAB	GREEN	BLUE	CR
		1	

# Inspection Report For Well: UT20736 - 04502 (PAGE 2)

**PHOTOGRAPHS:**

☐ Yes  
☒ No

List of photos taken: \_\_\_\_\_

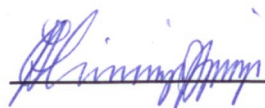
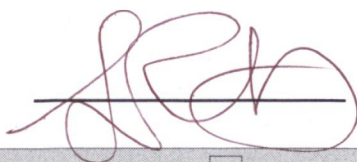
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Comments and site conditions observed during inspection:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**GPS:** GPS File ID: \_\_\_\_\_

Signature of EPA Inspector(s):



☐ Data Entry

☐ Compliance Staff

☐ Hard Copy Filing



# NOTICE OF INSPECTION



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION VIII, 999 18TH STREET - SUITE 500  
DENVER, COLORADO 80202-2405

Date: 12/10/13

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Hour: 8:00a

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

## REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

## SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts  
Inspector's Name & Title (Print)

[Signature]  
Inspector's Signature



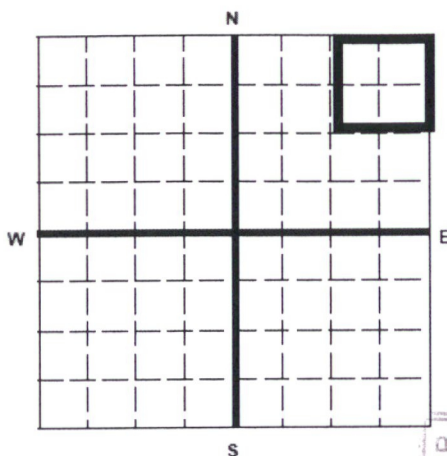
United States Environmental Protection Agency  
Washington, DC 20460

## ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee  
Petroglyph Operating Company, Inc. 2258  
P.O. Box 7608  
Boise, Idaho 83709

Name and Address of Surface Owner  
Ute Indian Tribe  
P.O. Box 70  
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on  
Section Plat - 640 Acres



State  
Utah

County  
Duchesne

Permit Number  
UT2736-04502

Surface Location Description

1/4 of 1/4 of NE 1/4 of NE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 473 ft. from (N/S) N Line of quarter section  
and 706 ft. from (E/W) E Line of quarter section.

U2 Entered

WELL ACTIVITY

☐ Brine Disposal  
☒ Enhanced Recovery  
☐ Hydrocarbon Storage

TYPE OF PERMIT

☐ Individual  
☒ Area

Number of Wells 111

Date 4/4/17  
Initial CB

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-01

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING - CASING ANNULUS PRESSURE  
(OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1754	1796	545		0	0
February	16	1715	1804	631		0	0
March	16	1784	1803	726		0	0
April	16	1724	1762	577		0	0
May	16	1695	1757	572		0	0
June	16	1692	1732	607		0	0
July	16	1686	1723	551		0	0
August	16	1760	1783	759		0	0
September	16	1706	1783	537		0	0
October	16	1765	1799	776		0	0
November	16	1783	1803	738		0	0
December	16	1724	1811	626		0	0

### Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

03/21/2017



Units of Measurement: **Standard**

## Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**Sales Rep: **James Patry**Well Name: **UTE TRIBAL 19-01 INJ, DUCHESNE**Lab Tech: **Kaitlyn Natelli**Sample Point: **Well Head**Sample Date: **1/6/2017**Scaling potential predicted using ScaleSoftPitzer from  
Brine Chemistry Consortium (Rice University)Sample ID: **WA-345305**

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/25/2017	Sodium (Na):	2507.63	Chloride (Cl):	3000.00
System Temperature 1 (°F):	300	Potassium (K):	23.01	Sulfate (SO <sub>4</sub> ):	30.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	17.25	Bicarbonate (HCO <sub>3</sub> ):	1952.00
System Temperature 2 (°F):	130	Calcium (Ca):	35.53	Carbonate (CO <sub>3</sub> ):	
System Pressure 2 (psig):	50	Strontium (Sr):	3.51	Hydroxide (HO):	
Calculated Density (g/ml):	1.0026	Barium (Ba):	4.34	Acetic Acid (CH <sub>3</sub> COO)	
pH:	8.40	Iron (Fe):	69.85	Propionic Acid (C <sub>2</sub> H <sub>5</sub> COO)	
Calculated TDS (mg/L):	7718.93	Zinc (Zn):	56.24	Butanoic Acid (C <sub>3</sub> H <sub>7</sub> COO)	
CO <sub>2</sub> in Gas (%):		Lead (Pb):	0.07	Isobutyric Acid ((CH <sub>3</sub> ) <sub>2</sub> CHCOO)	
Dissolved CO <sub>2</sub> (mg/L):	0.00	Ammonia (NH <sub>3</sub> ):		Fluoride (F):	
H <sub>2</sub> S in Gas (%):		Manganese (Mn):	0.33	Bromine (Br):	
H <sub>2</sub> S in Water (mg/L):	10.00	Aluminum (Al):	0.32	Silica (SiO <sub>2</sub> ):	19.17
Tot. Suspended Solids (mg/L):		Lithium (Li):	3.00	Calcium Carbonate (CaCO <sub>3</sub> ):	
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	3.97	Phosphates (PO <sub>4</sub> ):	12.35
Alkalinity:		Silicon (Si):	8.96	Oxygen (O <sub>2</sub> ):	

## Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Celestite SrSO <sub>4</sub>		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.53	29.21	0.51	1.72	4.86	9.06	3.94	50.77	0.00	0.00	0.00	0.00	0.00	0.00	12.30	10.04
149.00	267.00	1.59	29.45	0.41	1.52	4.80	9.06	4.03	50.78	0.00	0.00	0.00	0.00	0.00	0.00	12.03	10.04
168.00	483.00	1.67	29.75	0.34	1.33	4.77	9.06	4.13	50.78	0.00	0.00	0.00	0.00	0.00	0.00	11.81	10.04
187.00	700.00	1.75	30.03	0.28	1.17	4.77	9.06	4.22	50.78	0.00	0.00	0.00	0.00	0.00	0.00	11.62	10.04
206.00	917.00	1.84	30.26	0.24	1.04	4.79	9.06	4.31	50.78	0.00	0.00	0.00	0.00	0.00	0.00	11.45	10.04
224.00	1133.00	1.95	30.46	0.22	0.95	4.83	9.06	4.40	50.79	0.00	0.00	0.00	0.00	0.00	0.00	11.31	10.04
243.00	1350.00	2.06	30.62	0.20	0.91	4.88	9.06	4.48	50.79	0.00	0.00	0.00	0.00	0.00	0.00	11.19	10.04
262.00	1567.00	2.17	30.74	0.20	0.90	4.95	9.06	4.56	50.79	0.00	0.00	0.00	0.00	0.00	0.00	11.08	10.04
281.00	1783.00	2.29	30.84	0.21	0.93	5.03	9.06	4.63	50.79	0.00	0.00	0.00	0.00	0.00	0.00	10.99	10.04
300.00	2000.00	2.41	30.91	0.22	0.97	5.12	9.06	4.69	50.79	0.00	0.00	0.00	0.00	0.00	0.00	10.91	10.04



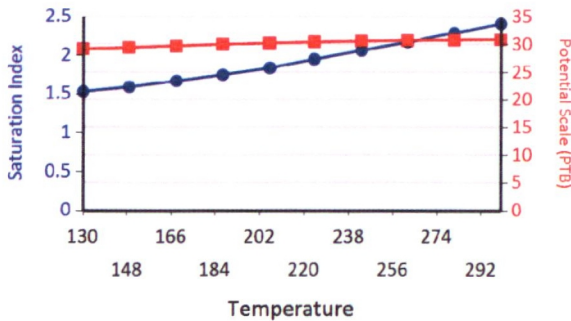
## Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO <sub>4</sub> ~0.5H <sub>2</sub> O		Anhydrate CaSO <sub>4</sub>		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	37.79	11.10	0.03	3.69	21.95	1.87	14.06	13.51	44.46
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	3.68	37.80	10.66	0.03	4.43	25.14	2.27	16.44	13.96	44.46
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	37.80	10.28	0.03	5.20	28.29	2.70	19.01	14.48	44.47
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	4.05	37.81	9.94	0.03	5.97	30.71	3.14	21.23	15.01	44.47
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	4.21	37.81	9.64	0.03	6.73	32.35	3.57	22.96	15.55	44.47
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	4.36	37.81	9.38	0.03	7.48	33.35	4.01	24.17	16.09	44.47
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	4.49	37.81	9.14	0.03	8.21	33.89	4.43	24.93	16.63	44.47
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60	37.81	8.93	0.03	8.91	34.17	4.85	25.37	17.16	44.47
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	4.70	37.81	8.74	0.03	9.59	34.32	5.25	25.61	17.68	44.47
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	4.78	37.81	8.58	0.03	10.24	34.39	5.64	25.74	18.18	44.47

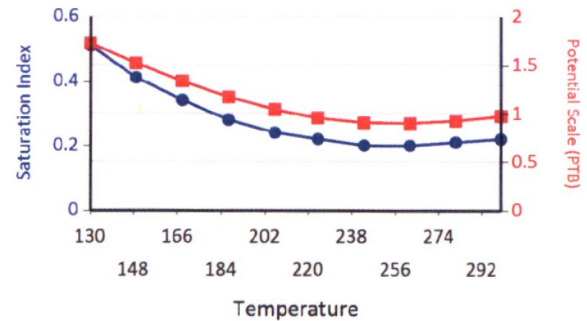
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

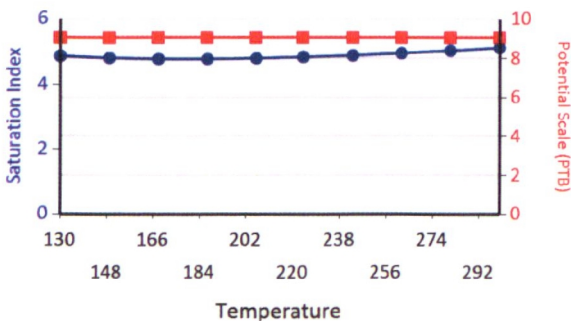
Calcium Carbonate



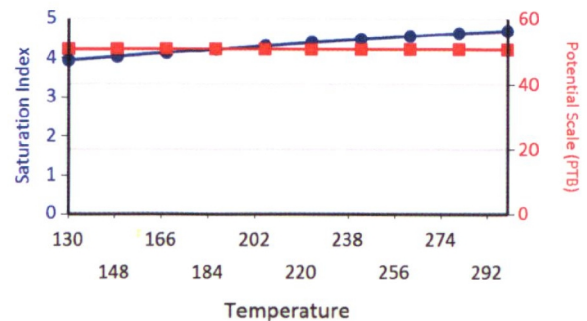
Barium Sulfate



Iron Sulfide

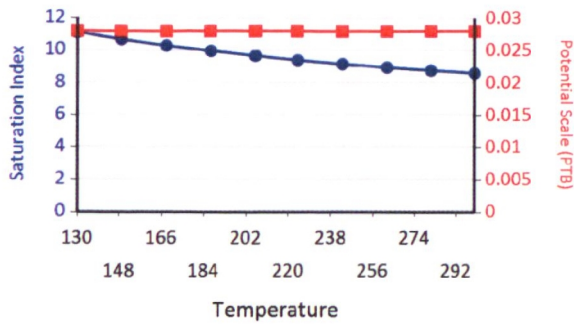


Iron Carbonate

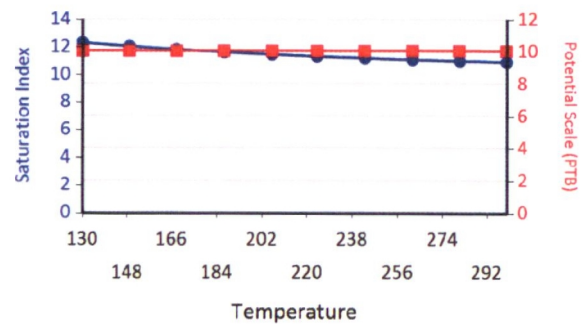


## Water Analysis Report

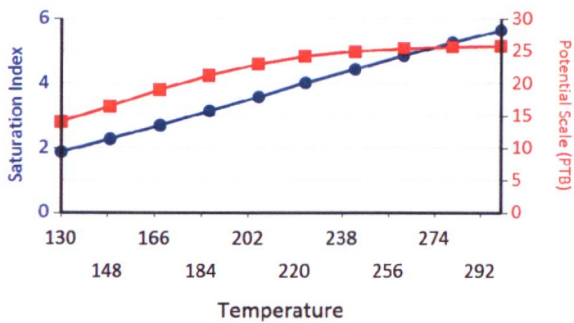
Lead Sulfide



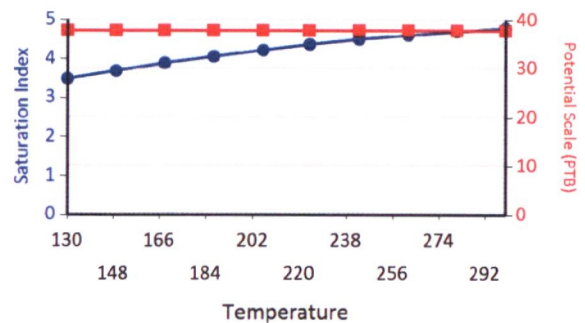
Zinc Sulfide



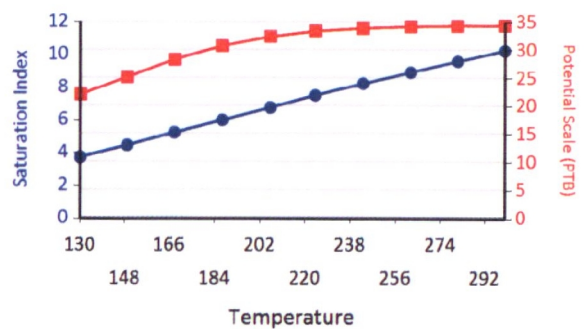
Ca Mg Silicate



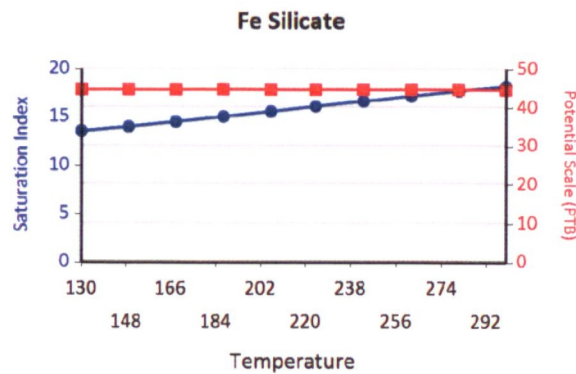
Zinc Carbonate



Mg Silicate



Water Analysis Report







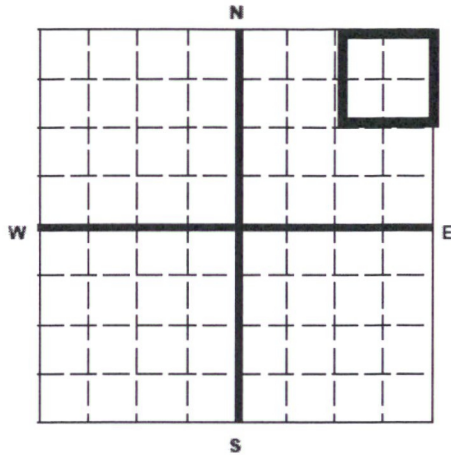
United States Environmental Protection Agency  
Washington, DC 20460

## ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee  
Petroglyph Operating Company, Inc. 2258  
P.O. Box 7608  
Boise, Idaho 83709

Name and Address of Surface Owner  
Ute Indian Tribe  
P.O. Box 70  
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on  
Section Plat - 640 Acres



State  
Utah

County  
Duchesne

Permit Number  
UT2736-04434 04502

Surface Location Description

1/4 of 1/4 of NE 1/4 of NE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 473 ft. from (N/S) N Line of quarter section  
and 706 ft. from (E/W) E Line of quarter section.

U2 Entered

WELL ACTIVITY

- ☐ Brine Disposal  
☒ Enhanced Recovery  
☐ Hydrocarbon Storage

TYPE OF PERMIT

- ☐ Individual  
☒ Area

Number of Wells 111

Date 3/2/16  
Initial JB

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-01

### INJECTION PRESSURE

### TOTAL VOLUME INJECTED

### TUBING - CASING ANNULUS PRESSURE (OPTIONAL MONITORING)

MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1727	1750	715		0	0
February	15	1774	1789	845		0	0
March	15	1734	1801	821		0	0
April	15	1737	1780	797		0	0
May	15	1772	1796	891		0	0
June	15	1762	1783	860		0	0
July	15	1782	1797	932		0	0
August	15	1742	1751	628		0	0
September	15	1735	1797	625		0	0
October	15	1777	1800	763		0	0
November	15	1781	1793	687		0	0
December	15	1732	1792	485		0	0

### Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

02/08/2016

GREEN

BLUE

CBI

TAB

2



Units of Measurement: Standard

## Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Sales Rep: James Patry

Well Name: UTE TRIBAL 19-01 INJ, DUCHESNE

Lab Tech: Michele Pike

Sample Point: Well Head

Sample Date: 1/6/2016

Scaling potential predicted using ScaleSoftPitzer from  
Brine Chemistry Consortium (Rice University)

Sample ID: WA-327526

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	1/14/2016	Sodium (Na):	5205.40	Chloride (Cl):	7500.00
System Temperature 1 (°F):	60	Potassium (K):	28.29	Sulfate (SO <sub>4</sub> ):	90.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	33.87	Bicarbonate (HCO <sub>3</sub> ):	1830.00
System Temperature 2 (°F):	180	Calcium (Ca):	95.29	Carbonate (CO <sub>3</sub> ):	
System Pressure 2 (psig):	50	Strontium (Sr):	7.90	Acetic Acid (CH <sub>3</sub> COO)	
Calculated Density (g/ml):	1.0078	Barium (Ba):	6.00	Propionic Acid (C <sub>2</sub> H <sub>5</sub> COO)	
pH:	8.10	Iron (Fe):	193.33	Butanoic Acid (C <sub>3</sub> H <sub>7</sub> COO)	
Calculated TDS (mg/L):	15071.64	Zinc (Zn):	49.32	Isobutyric Acid ((CH <sub>3</sub> ) <sub>2</sub> CHCOO)	
CO <sub>2</sub> in Gas (%):		Lead (Pb):	0.42	Fluoride (F):	
Dissolved CO <sub>2</sub> (mg/L):	0.00	Ammonia NH <sub>3</sub> :		Bromine (Br):	
H <sub>2</sub> S in Gas (%):		Manganese (Mn):	0.57	Silica (SiO <sub>2</sub> ):	31.25
H <sub>2</sub> S in Water (mg/L):	0.00	Aluminum (Al):	0.45	Calcium Carbonate (CaCO <sub>3</sub> ):	
Tot. Suspended Solids (mg/L):		Lithium (Li):	1.81	Phosphates (PO <sub>4</sub> ):	17.10
Corrosivity (Langlier Sat. Indx)	0.00	Boron (B):	3.89	Oxygen (O <sub>2</sub> ):	
Alkalinity:		Silicon (Si):	14.61		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Celestite SrSO <sub>4</sub>		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	1.79	77.31	0.65	2.74	0.00	0.00	4.22	140.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	1.69	74.93	0.68	2.79	0.00	0.00	4.11	140.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	1.61	73.03	0.71	2.85	0.00	0.00	4.01	140.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	1.54	70.92	0.76	2.92	0.00	0.00	3.91	140.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	1.47	68.62	0.81	3.00	0.00	0.00	3.81	140.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	1.41	66.19	0.88	3.08	0.00	0.00	3.72	140.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	1.35	63.69	0.96	3.17	0.00	0.00	3.62	140.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	1.30	61.18	1.06	3.25	0.00	0.00	3.52	139.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	1.25	58.72	1.17	3.32	0.00	0.00	3.43	139.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	1.21	56.36	1.30	3.39	0.00	0.00	3.33	139.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

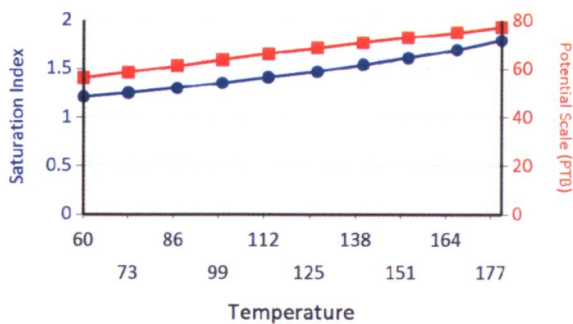
## Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO <sub>4</sub> ~0.5H <sub>2</sub> O		Anhydrate CaSO <sub>4</sub>		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	33.14	0.00	0.00	5.39	47.77	3.09	31.10	14.79	72.49
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	3.33	33.13	0.00	0.00	4.62	39.61	2.63	25.78	14.20	72.49
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	33.12	0.00	0.00	3.98	33.47	2.25	21.81	13.74	72.49
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	33.10	0.00	0.00	3.34	27.38	1.88	17.87	13.28	72.48
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83	33.06	0.00	0.00	2.69	21.51	1.51	14.07	12.84	72.46
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	33.01	0.00	0.00	2.05	15.98	1.14	10.48	12.40	72.42
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46	32.91	0.00	0.00	1.40	10.76	0.78	7.08	11.97	72.35
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	32.75	0.00	0.00	0.75	5.77	0.41	3.85	11.55	72.22
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	32.47	0.00	0.00	0.09	0.87	0.05	0.70	11.14	71.98
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	31.97	0.00	0.00	0.00	0.00	0.00	0.00	10.73	71.55

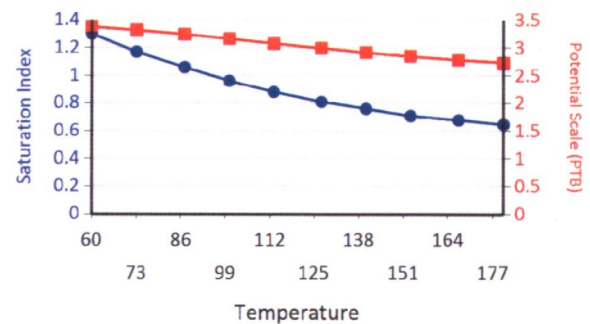
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Fe Silicate

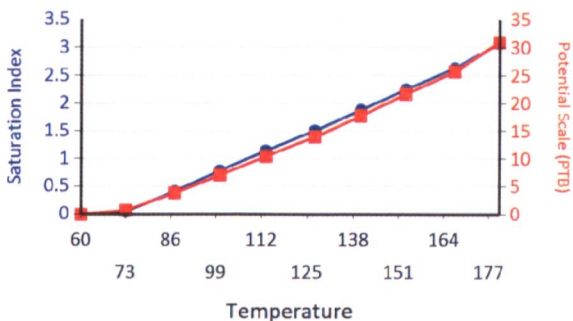
Calcium Carbonate



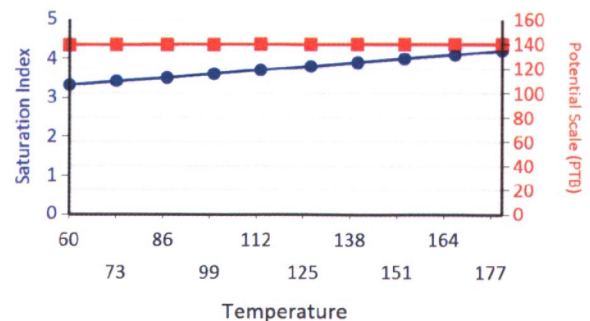
Barium Sulfate



Ca Mg Silicate



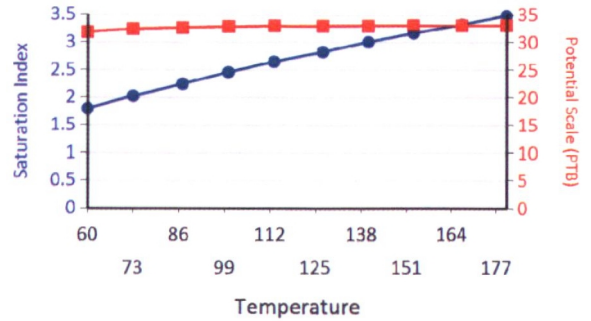
Iron Carbonate



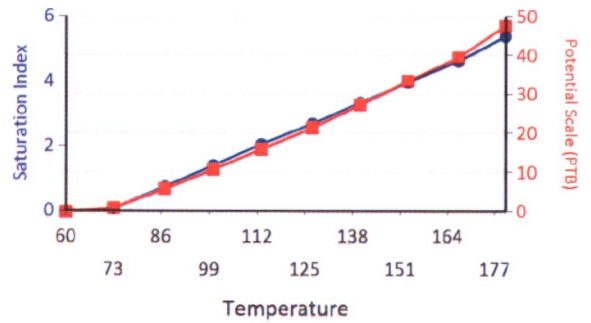


Water Analysis Report

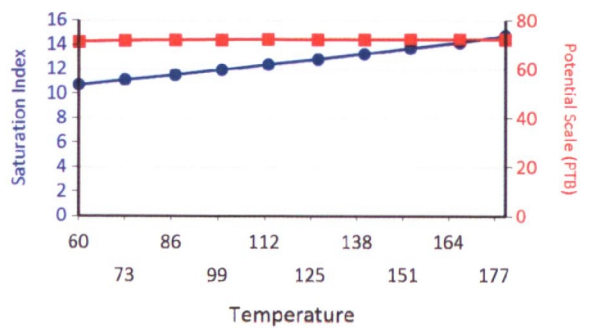
Zinc Carbonate



Mg Silicate



Fe Silicate





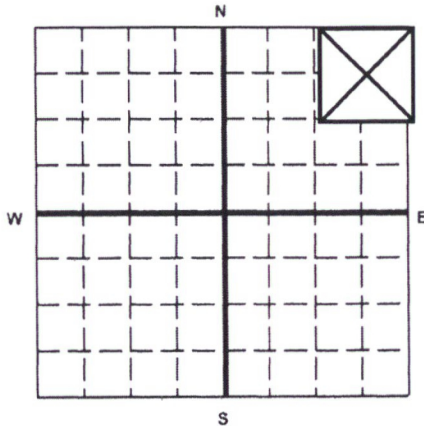
United States Environmental Protection Agency  
Washington, DC 20460

# ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee  
Petroglyph Operating Company, Inc. 2258  
P.O. Box 7608  
Boise, Idaho 83709

Name and Address of Surface Owner  
Ute Indian Tribe  
P.O. Box 70  
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on  
Section Plat - 640 Acres



State Utah County Duchesne Permit Number UT2736-04502

Surface Location Description

1/4 of 1/4 of NE 1/4 of NE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface

Location 473 ft. frm (N/S) N Line of quarter section  
and 706 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY

TYPE OF PERMIT

☐ Brine Disposal

☐ Individual

☒ Enhanced Recovery

☒ Area

☐ Hydrocarbon Storage

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-01

INJECTION PRESSURE				TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1768	1795	914		0	0
February	14	1768	1774	796		0	0
March	14	1765	1791	807		0	0
April	14	1783	1793	887		0	0
May	14	1772	1773	866		0	0
June	14	1763	1788	849		0	0
July	14	1728	1809	764		0	0
August	14	1761	1790	<del>1035</del>	<u>932</u> <u>inj monthly</u>	0	0
September	14	1653	1727	578		0	0
October	14	1718	1728	860		0	0
November	14	1764	1781	996		0	0
December	14	1724	1800	1014		0	0

## Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

Chad Stevenson, Water Facilities Supervisor

Signature

Date Signed

2/10/2015

U2 Entered

Date 3/30/15

Initial GW

	GREEN	BLUE	CBI
TAB		2	



## Multi-Chem Analytical Laboratory

1553 East Highway 40

Vernal, UT 84078

Units of Measurement: Standard

multi-chem®

A HALLIBURTON SERVICE

## Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Well Name: UTE TRIBAL 19-01 INJ, DUCHESNE

Sample Point: WELLHEAD

Sample Date: 1/7/2015

Sample ID: WA-297441

Sales Rep: James Patry

Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from  
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
Test Date:	1/14/2015	Cations		Anions	
		mg/L		mg/L	
System Temperature 1 (°F):	160	Sodium (Na):	2649.42	Chloride (Cl):	5000.00
System Pressure 1 (psig):	1300	Potassium (K):	43.88	Sulfate (SO4):	108.00
System Temperature 2 (°F):	80	Magnesium (Mg):	32.66	Bicarbonate (HCO3):	1464.00
System Pressure 2 (psig):	15	Calcium (Ca):	58.78	Carbonate (CO3):	
Calculated Density (g/ml):	1.0034	Strontium (Sr):	5.00	Acetic Acid (CH3COO)	
pH:	7.90	Barium (Ba):	6.09	Propionic Acid (C2H5COO)	
Calculated TDS (mg/L):	9399.50	Iron (Fe):	7.51	Butanoic Acid (C3H7COO)	
CO2 in Gas (%):		Zinc (Zn):	0.61	Isobutyric Acid ((CH3)2CHCOO)	
Dissolved CO2 (mg/L):	0.00	Lead (Pb):	0.00	Fluoride (F):	
H2S in Gas (%):		Ammonia NH3:		Bromine (Br):	
H2S in Water (mg/L):	5.00	Manganese (Mn):	0.09	Silica (SiO2):	23.46

## Notes:

B=4.76 Al=.03 Li=1.5

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.07	37.73	1.52	3.51	3.30	4.12	2.04	5.40	0.00	0.00	0.00	0.00	0.00	0.00	10.33	0.32
88.00	157.00	1.03	36.35	1.43	3.49	3.18	4.11	2.04	5.40	0.00	0.00	0.00	0.00	0.00	0.00	10.11	0.32
97.00	300.00	1.06	37.14	1.35	3.46	3.13	4.10	2.09	5.41	0.00	0.00	0.00	0.00	0.00	0.00	9.95	0.32
106.00	443.00	1.09	37.95	1.28	3.43	3.09	4.10	2.15	5.42	0.00	0.00	0.00	0.00	0.00	0.00	9.81	0.32
115.00	585.00	1.12	38.79	1.22	3.40	3.06	4.10	2.20	5.42	0.00	0.00	0.00	0.00	0.00	0.00	9.68	0.32
124.00	728.00	1.15	39.65	1.16	3.37	3.04	4.10	2.25	5.43	0.00	0.00	0.00	0.00	0.00	0.00	9.56	0.32
133.00	871.00	1.18	40.50	1.11	3.33	3.02	4.10	2.31	5.43	0.00	0.00	0.00	0.00	0.00	0.00	9.44	0.32
142.00	1014.00	1.22	41.35	1.06	3.30	3.01	4.09	2.36	5.43	0.00	0.00	0.00	0.00	0.00	0.00	9.33	0.32
151.00	1157.00	1.25	42.18	1.02	3.27	3.00	4.09	2.41	5.44	0.00	0.00	0.00	0.00	0.00	0.00	9.24	0.32
160.00	1300.00	1.29	43.00	0.98	3.24	3.01	4.09	2.46	5.44	0.00	0.00	0.00	0.00	0.00	0.00	9.14	0.32

		Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.16	0.00	0.00	0.00	0.00	0.00	0.00	5.86	5.70
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.20	0.00	0.00	0.00	0.00	0.00	0.00	5.77	5.69
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.26	0.00	0.00	0.00	0.00	0.00	0.00	6.04	5.72
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.29	0.00	0.00	0.01	0.19	0.00	0.00	6.32	5.74
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.32	0.00	0.00	0.46	2.68	0.00	0.00	6.61	5.76
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.34	0.00	0.00	0.91	5.31	0.00	0.00	6.92	5.78
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.36	0.00	0.00	1.36	8.04	0.14	0.98	7.23	5.79
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.37	0.00	0.00	1.82	10.84	0.40	2.52	7.55	5.80
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.38	0.00	0.00	2.28	13.66	0.66	4.06	7.87	5.81
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.39	0.00	0.00	2.73	16.43	0.93	5.58	8.20	5.82

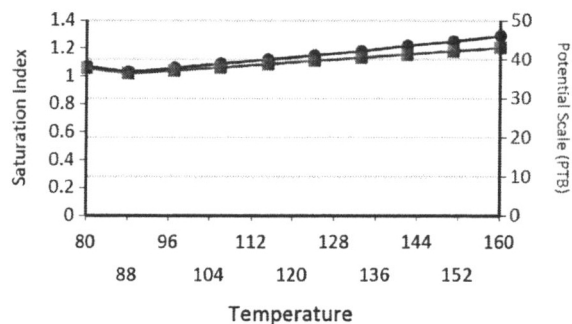


## Water Analysis Report

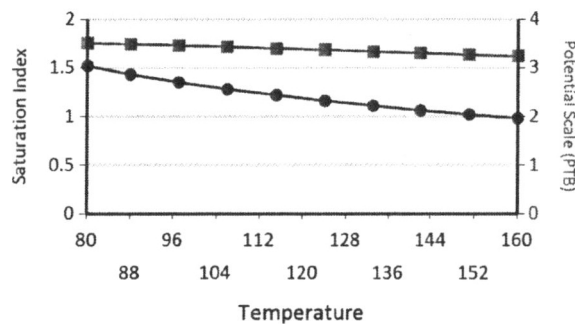
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

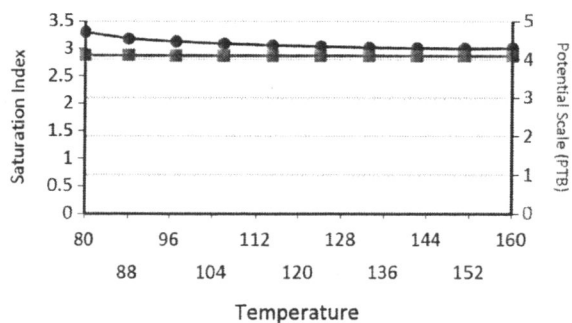
Calcium Carbonate



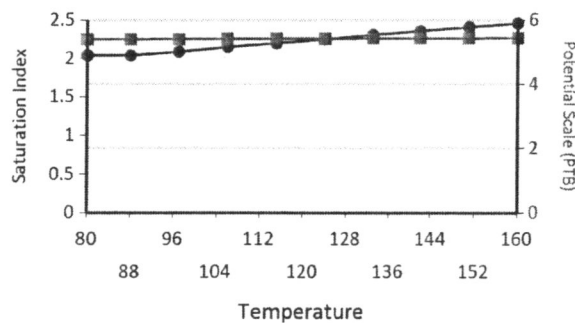
Barium Sulfate



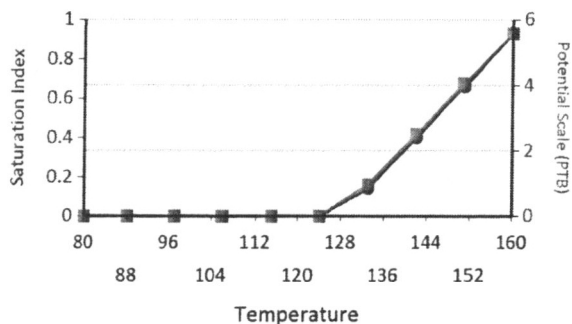
Iron Sulfide



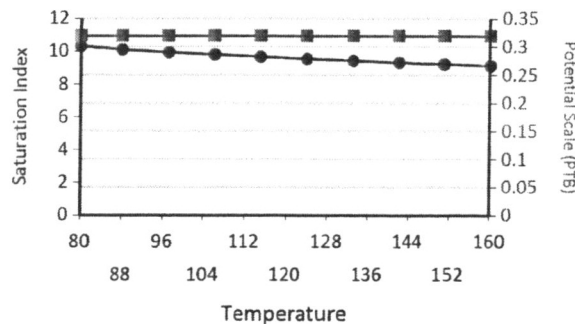
Iron Carbonate



Ca Mg Silicate

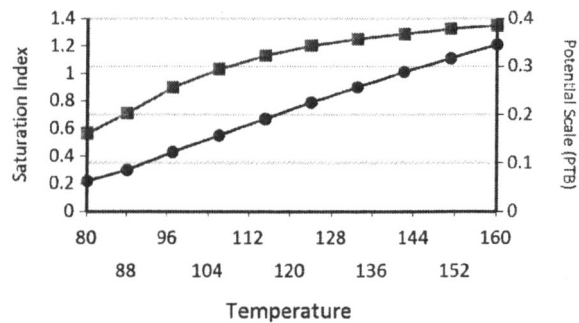


Zinc Sulfide

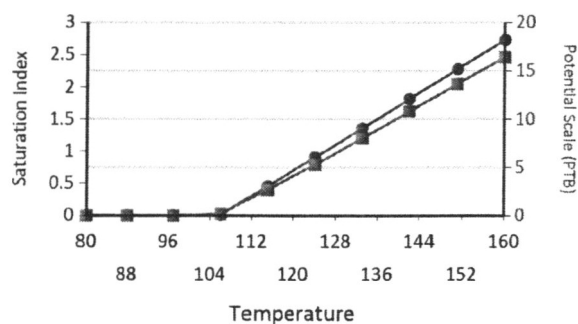


Water Analysis Report

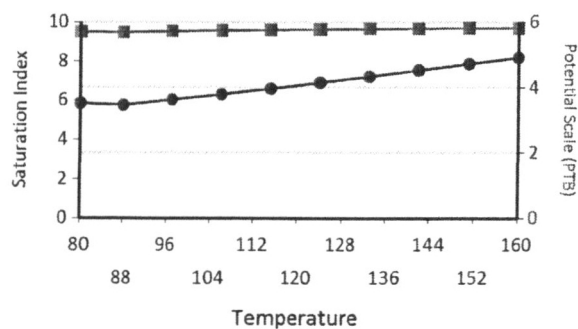
Zinc Carbonate



Mg Silicate



Fe Silicate



May 14, 2014

Don Breffle  
Mail Code: 8ENF-UFO  
US EPA Region 8  
1595 Wyncoop Street  
Denver, CO 80202-1129

**RE: EPA AREA PERMIT NO. UT2736-04502**  
**Mechanical Integrity Test**  
**Standard Five year retesting for Ute Tribal 19-01**

Mr. Breffle:

The enclose Mechanical Integrity Test was performed on the above referenced well on May 5, 2014. This MIT was performed because the well was due for the regular five year Mechanical Integrity Test.

If you need any more information please call at (435) 722-5302.

Sincerely,  
Petroglyph Operating Co., Inc.



Rodrigo Jurado  
Regulatory Compliance Specialist

Encl: MIT for the Ute Tribal 19-01

	GREEN	BLUE	CB
TAB		2	

U2 Entered  
Date 5/27/14  
Initial JB



RECEIVED

MAY 19 2014

Office of Enforcement, Compliance  
and Environmental Justice (UFO)

# Mechanical Integrity Test Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency  
Underground Injection Control Program  
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: \_\_\_\_\_ Date: 5, 5, 14

Test conducted by: CHAD STEVENSON

Others present: \_\_\_\_\_

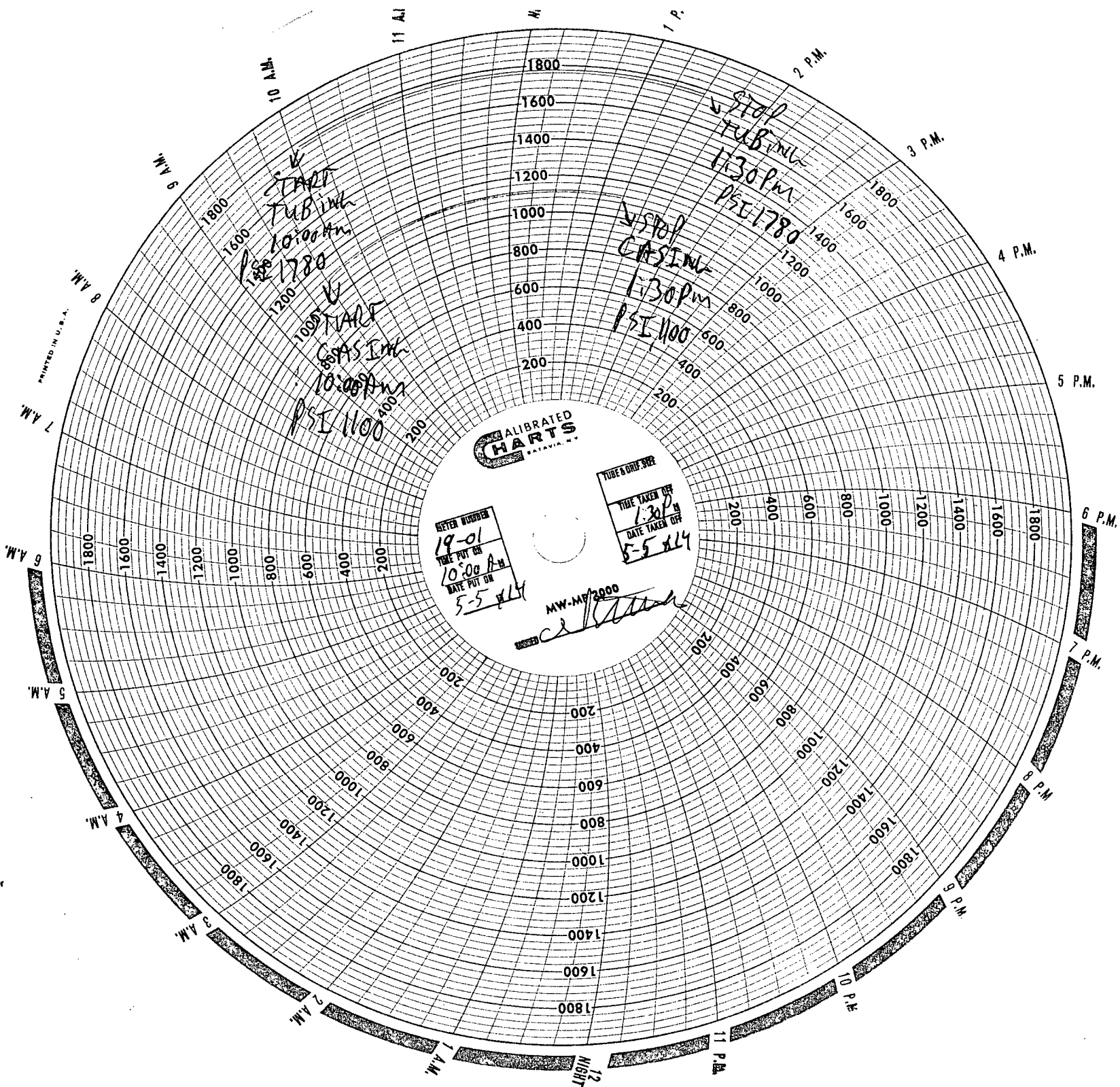
Well Name: <u>19-01</u>	Type: ER SWD	Status: AC TA UC
Field: <u>ANTELOPE CREEK</u>		
Location: <u>19-01</u> Sec: _____ T _____ N/S R _____ E/W	County: <u>DUCHESNE</u>	State: <u>UT</u>
Operator: <u>PETROGLYPH ENERGY</u>		
Last MIT: <u>1</u> / <u>1</u>	Maximum Allowable Pressure: _____	PSIG

Regularly scheduled test? ☒ Yes [ ] No  
Initial test for permit? [ ] Yes [ ] No  
Test after well rework? [ ] Yes [ ] No

Well injecting during test? If Yes, rate: 30 bpd  
Pre-test annulus pressure: \_\_\_\_\_ psig

MIT DATA TABLE	Test #1	Test #2	Test #3
<b>TUBING</b>	<b>PRESSURE RECORD</b>		
Initial Pressure	<u>1780</u> psig	psig	psig
End of test pressure	<u>1780</u> psig	psig	psig
<b>CASING / TUBING ANNULUS</b>	<b>PRESSURE RECORD</b>		
0 minutes	<u>1100</u> psig	psig	psig
5 minutes	<u>1100</u> psig	psig	psig
10 minutes	<u>1100</u> psig	psig	psig
15 minutes	<u>1100</u> psig	psig	psig
20 minutes	<u>1100</u> psig	psig	psig
25 minutes	<u>1100</u> psig	psig	psig
30 minutes	<u>1100</u> psig	psig	psig
<u>3 1/2</u> minutes	<u>1100</u> psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test? If Yes, \_\_\_\_\_ psig.







United States Environmental Protection Agency  
Washington, DC 20460

## ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

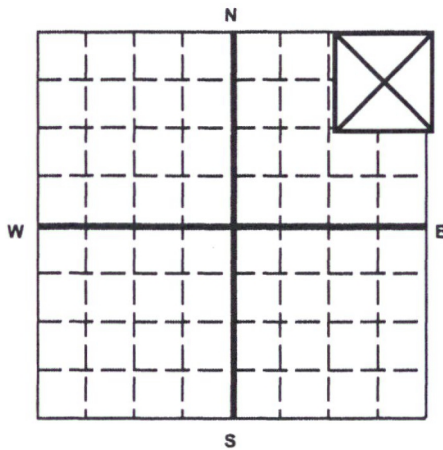
### Name and Address of Existing Permittee

Petroglyph Operating Company, Inc. 2258  
P.O. Box 7608  
Boise, Idaho 83709

### Name and Address of Surface Owner

Ute Indian Tribe  
P.O. Box 70  
Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on  
Section Plat - 640 Acres



State

Utah

County

Duchesne

Permit Number

UT2736-04502

### Surface Location Description

1/4 of 1/4 of NE 1/4 of NE 1/4 of Section 19 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

### Surface

Location 473 ft. from (N/S) N Line of quarter section  
and 706 ft. from (E/W) E Line of quarter section.

### WELL ACTIVITY

- ☐ Brine Disposal  
☒ Enhanced Recovery  
☐ Hydrocarbon Storage

### TYPE OF PERMIT

- ☐ Individual  
☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe

Well Number UTE TRIBAL 19-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1718	1775	338		0	0
February	13	1626	1784	449		0	0
March	13	1763	1795	721		0	0
April	13	1770	1779	729		0	0
May	13	1778	1795	782		0	0
June	13	1728	1741	601		0	0
July	13	1695	1751	610		0	0
August	13	1699	1739	738		0	0
September	13	1724	1792	729		0	0
October	13	1719	1812	708		0	0
November	13	1758	1775	821		0	0
December	13	1566	1755	779		0	0

### Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title (Please type or print)

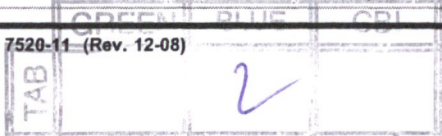
Chad Stevenson, Water Facilities Supervisor

Signature

*Chad Stevenson* U2 Entered

Date Signed

2/11/2014



Date 3/20/14  
Initial JS

## Water Analysis Report

Production Company: PETROGLYPH ENERGY INC

Well Name: UTE TRIBAL 19-01 INJ

Sample Point: Wellhead

Sample Date: 1/8/2014

Sample ID: WA-262959

Sales Rep: James Patry

Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from  
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations		Anions	
Test Date:	1/15/2014	mg/L		mg/L	
System Temperature 1 (°F):	180	Sodium (Na):	5087.72	Chloride (Cl):	7000.00
System Pressure 1 (psig):	1300	Potassium (K):	108.00	Sulfate (SO <sub>4</sub> ):	48.00
System Temperature 2 (°F):	60	Magnesium (Mg):	17.00	Bicarbonate (HCO <sub>3</sub> ):	1830.00
System Pressure 2 (psig):	15	Calcium (Ca):	48.00	Carbonate (CO <sub>3</sub> ):	
Calculated Density (g/ml):	1.007	Strontium (Sr):	5.40	Acetic Acid (CH <sub>3</sub> COO)	
pH:	8.50	Barium (Ba):	17.00	Propionic Acid (C <sub>2</sub> H <sub>5</sub> COO)	
Calculated TDS (mg/L):	14190.43	Iron (Fe):	5.20	Butanoic Acid (C <sub>3</sub> H <sub>7</sub> COO)	
CO <sub>2</sub> in Gas (%):		Zinc (Zn):	0.29	Isobutyric Acid ((CH <sub>3</sub> ) <sub>2</sub> CHCOO)	
Dissolved CO <sub>2</sub> (mg/L):	0.00	Lead (Pb):	0.01	Fluoride (F):	
H <sub>2</sub> S in Gas (%):		Ammonia NH <sub>3</sub> :		Bromine (Br):	
H <sub>2</sub> S in Water (mg/L):	0.00	Manganese (Mn):	0.27	Silica (SiO <sub>2</sub> ):	23.54

## Notes:

B=6 Al=0 Li=1.5

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Celestite SrSO <sub>4</sub>		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.50	38.33	1.63	9.81	0.00	0.00	2.30	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.51	38.32	1.49	9.69	0.00	0.00	2.36	3.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.53	38.52	1.36	9.55	0.00	0.00	2.43	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.55	38.75	1.25	9.38	0.00	0.00	2.50	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.57	38.99	1.15	9.19	0.00	0.00	2.56	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.60	39.25	1.06	9.00	0.00	0.00	2.62	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.64	39.50	0.99	8.80	0.00	0.00	2.68	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.67	39.76	0.92	8.60	0.00	0.00	2.74	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.72	40.01	0.87	8.41	0.00	0.00	2.80	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.76	40.25	0.83	8.24	0.00	0.00	2.85	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



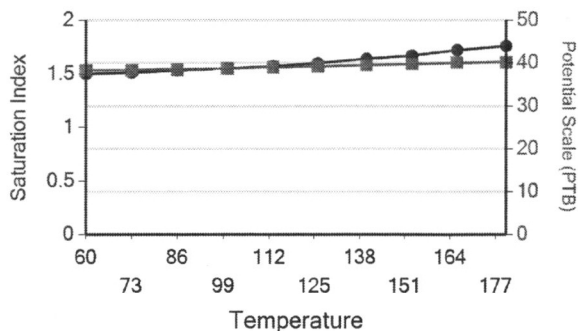
## Water Analysis Report

Temp (°F)	PSI	Hemihydrate CaSO <sub>4</sub> ·0.5H <sub>2</sub> O		Anhydrate CaSO <sub>4</sub>		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.00	0.00	0.74	5.39	0.32	2.76	8.24	4.03
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.10	0.00	0.00	1.21	8.20	0.55	4.27	8.44	4.03
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.13	0.00	0.00	1.73	11.12	0.81	5.90	8.71	4.04
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.15	0.00	0.00	2.26	13.86	1.09	7.44	9.00	4.04
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.17	0.00	0.00	2.80	16.41	1.37	8.88	9.31	4.04
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.18	0.00	0.00	3.34	18.76	1.67	10.16	9.63	4.04
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.18	0.00	0.00	3.89	20.88	1.97	11.27	9.97	4.04
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.19	0.00	0.00	4.43	22.75	2.27	12.19	10.31	4.04
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.19	0.00	0.00	4.97	24.35	2.57	12.93	10.67	4.04
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.19	0.00	0.00	5.51	25.66	2.87	13.50	11.02	4.04

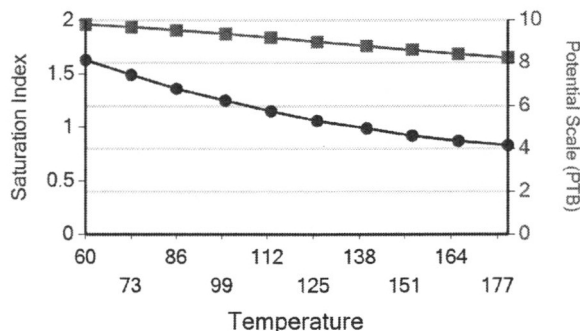
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

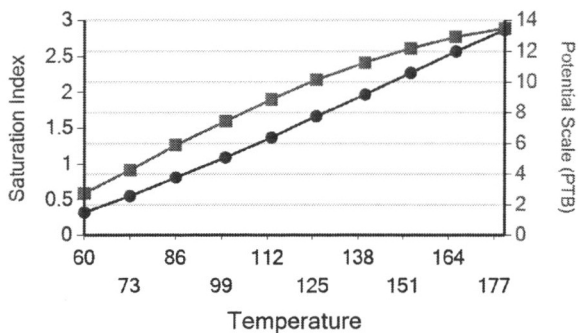
Calcium Carbonate



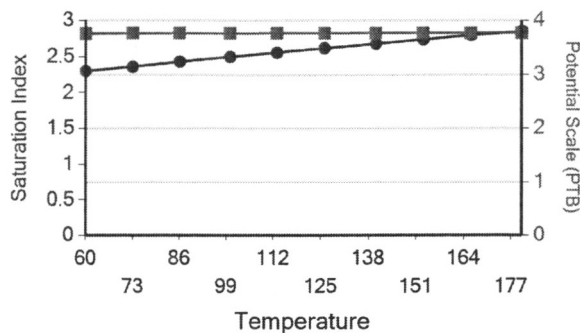
Barium Sulfate



Ca Mg Silicate

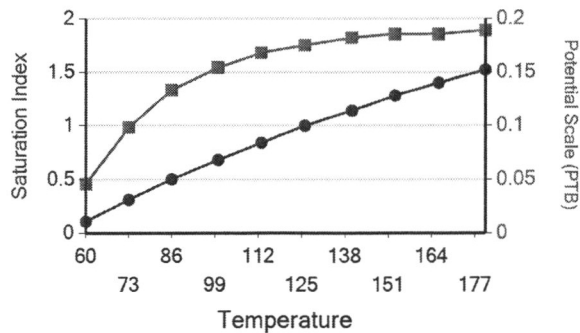


Iron Carbonate

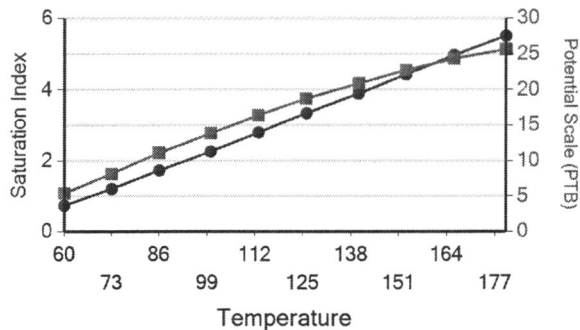


Water Analysis Report

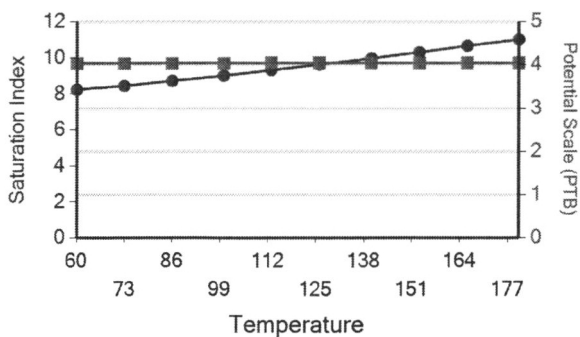
Zinc Carbonate



Mg Silicate



Fe Silicate







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 500  
DENVER, CO 80202-2466

MAY 3 1999

Ref: 8P-W-GW

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator  
Petroglyph Operating Company, Inc.  
4116 West 3000 South Ioka Lane  
P.O. Box 607  
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION  
Ute Tribal #19-01 (UT04502)  
EPA AREA PERMIT UT2736-00000  
Antelope Creek Waterflood  
Duchesne County, Utah

Dear Mrs. Bell

Thank you for submitting information pertaining to Ute Tribal #19-01 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic,
2. Successfully run Mechanical Integrity Test (MIT) with pressure chart,
3. Injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-01 under the conditions of UIC Permit UT2736-04502. The Director has determined that the maximum surface injection pressure for the Ute Tribal #19-01 shall not exceed 1804 psig.



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REGION 8  
999 18<sup>TH</sup> STREET - SUITE 500  
DENVER, CO 80202-2466

MAY 3 1999

*Scan under  
UT 20736 - 04502  
Authorization to  
Inject - Final 5/3/1999*

Ref: 8P-W-GW

CERTIFIED MAIL  
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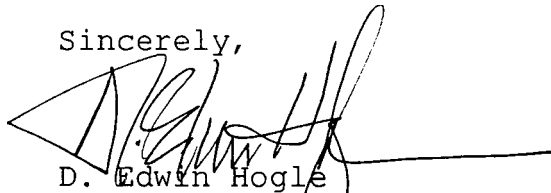
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. John Carson, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Carson at the address listed below, referencing EPA WELL ID: UT04502 on all reports and correspondence.

Mr. John Carson,  
Technical Enforcement Program, Mail Code 8ENF-T  
U.S. Environmental Protection Agency  
999 18th Street, Suite 500  
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Carson at 303.312.6203.

Sincerely,



D. Edwin Hogle  
Director, Groundwater Program  
Office of Partnerships and  
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman  
Uintah & Ouray Business Committee  
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director  
Ute Indian Tribe

Mr. Norman Cambridge  
BIA - Uintah & Ouray Agency

Mr. Gil Hunt  
State of Utah Natural Resources  
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka  
BLM - Vernal District Office



Is your RETURN ADDRESS completed on the reverse side?

SENDER: 5/3/99 CW 3505C (3505C)

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a; and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

3. Article Addressed to:

Ms. Deanna Bell  
Operations Coordinator  
Petroglyph Operating Company, Inc.  
P.O. Box 607  
Roosevelt, UT 84066

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

X Deanna Bell

MAY 4 1999

I also wish to receive the following services (for an extra fee):

- 1. ☐ Addressee's Address
- 2. ☐ Restricted Delivery

Consult postmaster for fee.

4a. Article Number

P380306167

4b. Service Type

- ☐ Registered ☒ Certified
- ☐ Express Mail ☐ Insured
- ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5-7-99

8. Addressee's Address (Only if requested and fee is paid)

Enid Lg  
JUN 4 1999

PS Form 3811, December 1994

102595-97-B-0179

Domestic Return Receipt

Thank you for using Return Receipt Service.

P 380 306 167

US Postal Service 5/3/99 CW 3505C

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to

Ms. Deanna Bell

Operations Coordinator

Petroglyph Operating Company,

P.O. Box 607

Inc.

Roosevelt, UT 84066

Postage

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, & Addressee's Address

TOTAL Postage & Fees

\$

Postmark or Date

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 500  
DENVER, CO 80202-2466

MAY 3 1999

Ref: 8P-W-GW

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator  
Petroglyph Operating Company, Inc.  
4116 West 3000 South Ioka Lane  
P.O. Box 607  
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION  
Ute Tribal #19-07 (UT04491)  
Antelope Creek Field  
EPA AREA PERMIT UT2736-00000  
Duchesne County, Utah

Dear Mrs. Bell

Thank you for submitting information pertaining to Ute Tribal #19-07 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic,
2. Successfully run Mechanical Integrity Test (MIT) with pressure chart,
3. Injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-07 under the conditions of UIC Permit UT2736-00000. The Director has determined that the **maximum surface injection pressure for the Ute Tribal #19-07 shall not exceed 1985 psig.**



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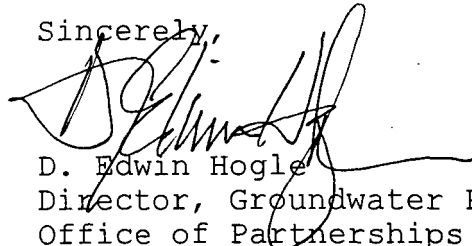
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. John Carson, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Carson at the address listed below, referencing EPA WELL ID: UT04491 on all reports and correspondence.

Mr. John Carson,  
Technical Enforcement Program, Mail Code 8ENF-T  
U.S. Environmental Protection Agency  
999 18th Street, Suite 500  
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Carson at 303.312.6203.

Sincerely,



D. Edwin Hogle  
Director, Groundwater Program  
Office of Partnerships and  
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman  
Uintah & Ouray Business Committee  
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director  
Ute Indian Tribe

Mr. Norman Cambridge  
BIA - Uintah & Ouray Agency

Mr. Gil Hunt  
State of Utah Natural Resources  
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka  
BLM - Vernal District Office





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 500  
DENVER, CO 80202-2466

MAY 3 1999

CONCURRENCE COPY

Ref: 8P-W-GW

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator  
Petroglyph Operating Company, Inc.  
4116 West 3000 South Ioka Lane  
P.O. Box 607  
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION  
Ute Tribal #19-01 (UT04502)  
EPA AREA PERMIT UT2736-00000  
Antelope Creek Waterflood  
Duchesne County, Utah

Dear Mrs. Bell

Thank you for submitting information pertaining to Ute Tribal #19-01 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Area Permit UT2736-00000 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

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All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #19-01 under the conditions of UIC Permit UT2736-04502. The Director has determined that the **maximum surface injection pressure for the Ute Tribal #19-01 shall not exceed 1804 psig.**

Concur

CEW  
4/27/99

8P-W-GW  
D. Jackson  
4/27/99

*[Handwritten signature]*

8P-W-GW  
mailed  
5/3/99 LG



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Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. John Carson, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Carson at the address listed below, referencing EPA WELL ID: UT04502 on all reports and correspondence.

Mr. John Carson,  
Technical Enforcement Program, Mail Code 8ENF-T  
U.S. Environmental Protection Agency  
999 18th Street, Suite 500  
Denver, Colorado, USA, 80202-2466

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Sincerely,

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Director, Groundwater Program  
Office of Partnerships and  
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman  
Uintah & Ouray Business Committee  
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director  
Ute Indian Tribe

Mr. Norman Cambridge  
BIA - Uintah & Ouray Agency

Mr. Gil Hunt  
State of Utah Natural Resources  
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka  
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 300  
DENVER, CO 80202-2466

AUG 28 2001

Ref: 8P-W-GW

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Micheal Safford  
Operations Coordinator  
Petroglyph Operating Company, Inc.  
P.O. Box 607  
Roosevelt, UT 84066

RE: UNDERGROUND INJECTION CONTROL (UIC)  
APPROVAL TO INCREASE MAXIMUM  
SURFACE INJECTION PRESSURE  
EPA Area Permit No. UT2736-00000  
Ute Tribal No. 19-01  
EPA Well Authority No. UT04502  
Antelope Creek Waterflood  
Duchesne County, Utah

Dear Mr. Safford:

The Environmental Protection Agency (EPA) Antelope Creek Final Area Permit UT2736-00000 (Effective July 12, 1994) Part II, Section C. 5. (b), permits the "Director" to authorize, by letter, an increase in the maximum surface injection pressure (MIP) for the Ute Tribal No. 19-01, following receipt and approval of a valid step-rate test (SRT).

On August 3, 2001, Petroglyph Energy, Inc. (Petroglyph) submitted an SRT to the EPA, dated June 29, 2001. The SRT was received by the EPA on August 10, 2001. The SRT was reviewed and approved by the EPA on August 10, 2001. The SRT shows the fracture gradient (FG) for the Green River Formation injection interval between the approximate depths of 4,035' and 5,544' to be 0.89 psi/ft.

As of the date of this letter, the EPA authorizes an increase in the maximum surface injection pressure (MSIP) from 1804 psig to 1835 psig. The following modified injection pressure will provide for higher injectivity capacity which will improve the waterflood efficiency without endangering any underground sources of drinking water (USDWs).



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 300  
DENVER, CO 80202-2466

AUG 28 2001

Ref: 8P-W-GW

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Micheal Safford  
Operations Coordinator  
Petroglyph Operating Company, Inc.  
P.O. Box 607  
Roosevelt, UT 84066

RE: UNDERGROUND  
APPROVAL TO INCREASE  
SURFACE INJECTION PRESSURE  
EPA Area Permit No. UT2736-00000  
Ute Tribal No. 19-01  
EPA Well Authority No. UT04502  
Antelope Creek Waterflood  
Duchesne County, Utah

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*Scan under  
UT20736-04502  
218 MAIP Change  
Request 8/28/2001*



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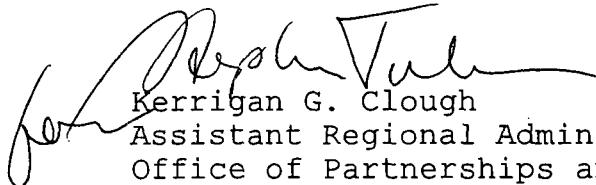
FG = 0.89 psi/ft  
D = 4035 feet: top of perforations  
SG = Specific gravity of injectate: 1.005  
0.433 = Density of injectate fluid  
MIP = [(0.89) - (.433)(1.005)] 4035

MSIP = 1835 psig

Please send all compliance correspondence relative to this well to the **ATTENTION: Nathan Wiser, at the letterhead address, citing Mail Code: 8ENF-T very prominently.** You may call Mr. Wiser at 303.312.6211.

All other provisions and conditions of the Permit remain as originally issued July 12, 1994 and Revised April 30, 1998.

Sincerely,



Kerrigan G. Clough  
Assistant Regional Administrator  
Office of Partnerships and  
Regulatory Assistance

cc: Mr. D. Floyd Wopsock, Chairman  
Uintah & Ouray Business Committee  
Ute Indian Tribe

Ms. Elaine Willie, Environmental Coordinator  
Ute Indian Tribe

Norman Cambridge  
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka  
BLM - Vernal District Office

Mr. Gilbert Hunt  
State of Utah Natural Resources  
Division of Oil, Gas & Mining

Mr. Nathan Wiser  
8ENF-T

U.S. Postal Service  
**CERTIFIED MAIL RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

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AUG 28 2001

Sent To	<b>Mr. Micheal Safford</b>
	<b>Operations Coordinator</b>
Street, Apt. No., or PO Box	<b>Petroglyph Operating Co., Inc.</b>
City, State, ZIP+4	<b>P.O. BOX 607</b>
	<b>84066</b>

PS Form 3800, January 2001 See Reverse for Instructions

7001 0320 0005 9387 1826



# Step Rate Test (SRT) Analysis

Date: 08/10/01

Operator: Petroglyph Energy, Inc.

Well: Ute Tribal 19-01

Permit #: UT2736-04502

Enter the following data :

Specific Gravity ( SG ) of injectate	1.005	g/cc
Depth to top perforation( D )	4035	feet
Depth to Top of permitted injection zone		feet
Estimated Formation Parting Pressure ( Pfp ) from SRT chart	1840	psi
Instantaneous Shut In Pressure ( ISIP ) from SRT	1920	psi
Bottom Hole Parting Pressure (from downhole pressure recorder)		psi

1840

## Part One - Calculation of Fracture Gradient ( F G )

Calculated Fracture Gradient = 0.890 psi/ft.

$FG = P_{bhp} / \text{Depth (D) of top perforation}$   
(Uses downhole recorded bottom hole parting pressure when available)

0.891

Calculated Bottom Hole Parting Pressure = 3596 psi

Calculated  $P_{bhp} = \text{Formation Fracture Pressure} + (0.433 * SG * D)$   
( Use lesser of ISIP or Pfp) value used= 1840

3596

## Part Two - Calculation of Maximum Surface Injection Pressure ( M S I P )

Maximum Surface Injection Pressure = 1835 psig  
(rounded down to nearest 5 psig)

$MSIP = [FG \cdot (0.433 * SG)] * \text{Depth to top of permitted injection zone (or top perforation)}$

4035

1835

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: **8/28/01 CW 4154C & Mr. Micheal Safford 4155C**  
**Operations Coordinator**  
**Petroglyph Operating Co., Inc.**  
**P.O. Box 607**  
**Roosevelt, UT 84066**

**AUG 28 2001**

*(UT 2736-04234)*  
*UTE TRIBAL NO. 05-10*

2. Article Number (Copy from service label)

**7001 0320 0005 9387 1826**

PS Form 3811, July 1999

Domestic Return Receipt

102595-00-M-0952

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) B. Date of Delivery

C. Signature

☒ Agent ☒ Addressee

D. Is delivery address different from item 1? ☐ Yes ☐ No  
 If YES, enter delivery address below:

*rec'd (Lg)*  
**SEP 5 2001**

3. Service Type

☒ Certified Mail ☐ Express Mail  
☐ Registered ☐ Return Receipt for Merchandise  
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes ☐ No

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)

**OFFICIAL USE**

Postage \$  
 Certified Fee  
 Return Receipt Fee (Endorsement Required)  
 Restricted Delivery Fee (Endorsement Required)  
 Total Postage & Fees \$

Postmark Here

**AUG 28 2001**

Sent To **Mr. Micheal Safford**  
**Operations Coordinator**  
**Petroglyph Operating Co., Inc.**  
**P.O. BOX 607**  
**Roosevelt UT 84066**  
 PS Form 3811, January 2001 See Reverse for Instructions

*8/28/01 To Micheal Safford*  
*Petroglyph Operating Company, Inc.*

*(mailed together; Original green card)*  
 1. *UTE TRIBAL NO. 05-10*  
*(UT 2736-04234) (# 4154C)*

\* 2. *UTE TRIBAL NO. 19-01*  
*(UT 2736-04502) (# 4155C)*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 300  
DENVER, CO 80202-2466

AUG 28 2001

CONCURRENCE COPY

Ref: 8P-W-GW

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Micheal Safford  
Operations Coordinator  
Petroglyph Operating Company, Inc.  
P.O. Box 607  
Roosevelt, UT 84066

RE: UNDERGROUND INJECTION CONTROL (UIC)  
APPROVAL TO INCREASE MAXIMUM  
SURFACE INJECTION PRESSURE  
EPA Area Permit No. UT2736-00000  
Ute Tribal No. 19-01  
EPA Well Authority No. UT04502  
Antelope Creek Waterflood  
Duchesne County, Utah

Dear Mr. Safford:

The Environmental Protection Agency (EPA) Antelope Creek Final Area Permit UT2736-00000 (Effective July 12, 1994) Part II, Section C. 5. (b), permits the "Director" to authorize, by letter, an increase in the maximum surface injection pressure (MIP) for the Ute Tribal No. 19-01, following receipt and approval of a valid step-rate test (SRT).

On August 3, 2001, Petroglyph Energy, Inc. (Petroglyph) submitted an SRT to the EPA, dated June 29, 2001. The SRT was received by the EPA on August 10, 2001. The SRT was reviewed and approved by the EPA on August 10, 2001. The SRT shows the fracture gradient (FG) for the Green River Formation injection interval between the approximate depths of 4,035' and 5,544' to be 0.89 psi/ft.

As of the date of this letter, the EPA authorizes an increase in the maximum surface injection pressure (MSIP) from 1804 psig to 1835 psig. The following modified injection pressure will provide for higher injectivity capacity which will improve the waterflood efficiency without endangering any underground sources of drinking water (USDWs).

CEW  
8/21/01

8P-W-GW  
8/22/01

8P-W-GW  
8/23/01 LG  
mailed  
8/28/01 LG

8/22/01  
8/27/01



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FG = 0.89 psi/ft  
D = 4035 feet: top of perforations  
SG = Specific gravity of injectate: 1.005  
0.433 = Density of injectate fluid  
MIP = [(0.89) - (.433)(1.005)] 4035

MSIP = 1835 psig

Please send all compliance correspondence relative to this well to the **ATTENTION: Nathan Wiser, at the letterhead address, citing Mail Code: 8ENF-T very prominently.** You may call Mr. Wiser at 303.312.6211.

All other provisions and conditions of the Permit remain as originally issued July 12, 1994 and Revised April 30, 1998.

Sincerely,

Kerrigan G. Clough  
Assistant Regional Administrator  
Office of Partnerships and  
Regulatory Assistance

cc: Mr. D. Floyd Wopsock, Chairman  
Uintah & Ouray Business Committee  
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999 18<sup>TH</sup> STREET - SUITE 300  
DENVER, CO 80202-2466

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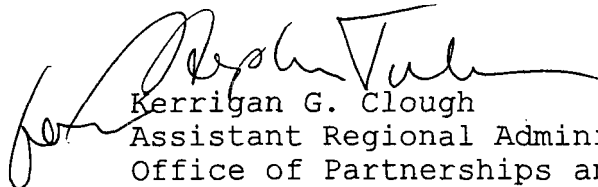
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8ENF-T



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